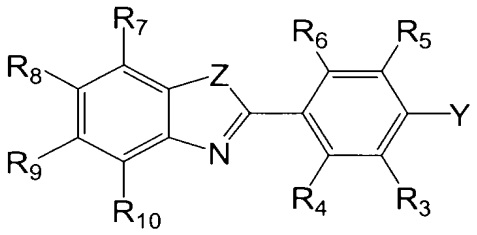
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-77 (Previously Canceled)

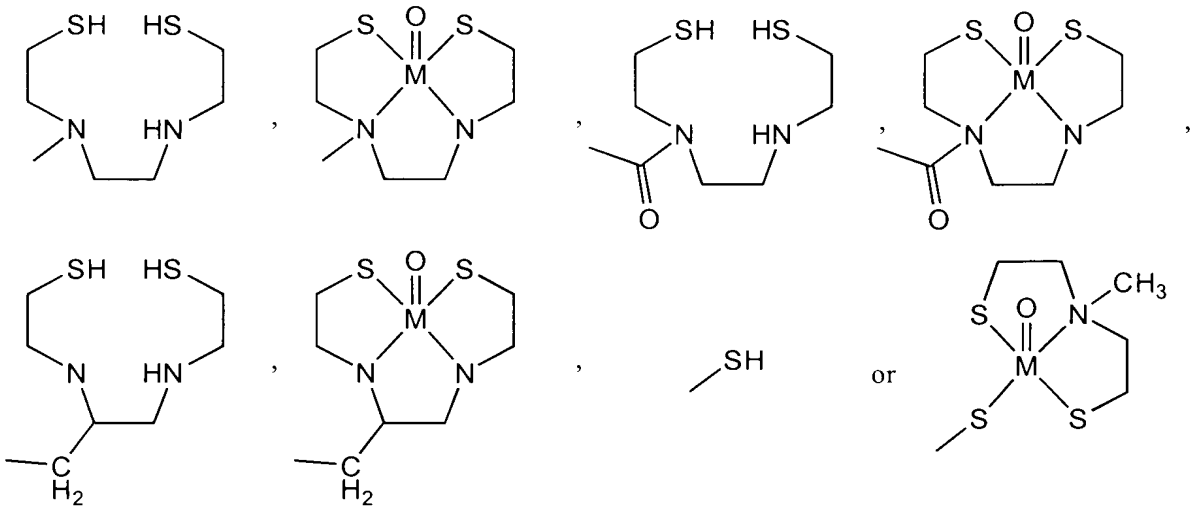
78. (Previously Presented) An amyloid binding compound of the following formula or a water soluble, non-toxic salt thereof:



wherein Z is S; Y is OH; and

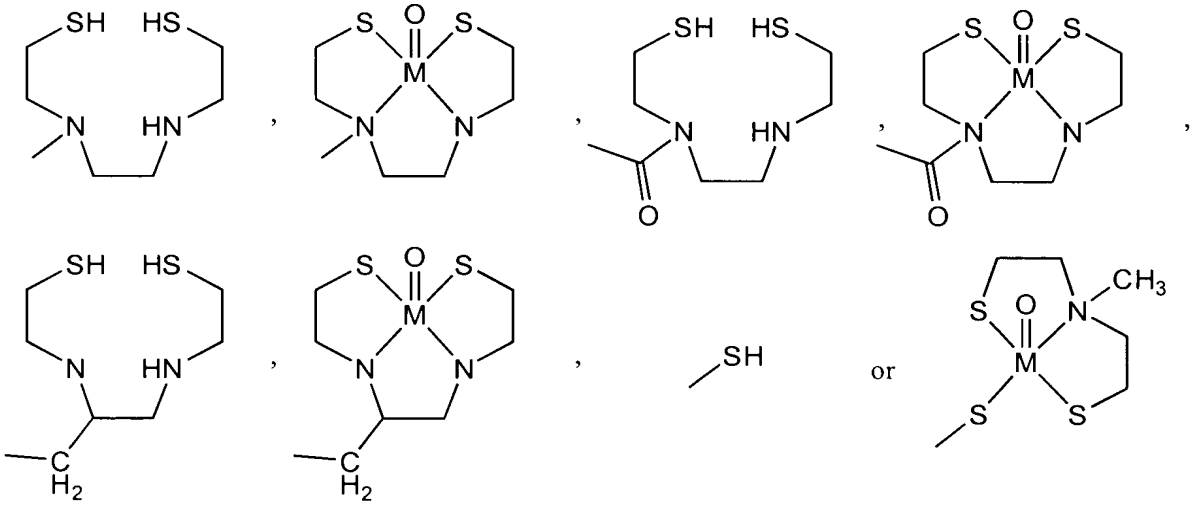
wherein R^3-R^8 and R^{10} are independently selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is $-(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:

or



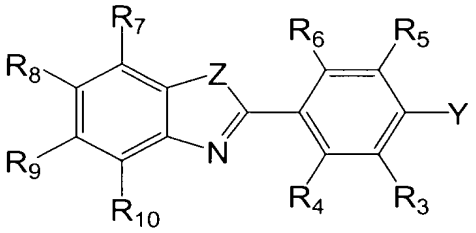
wherein M is selected from the group consisting of Tc and Re; and

wherein R^9 is selected from the group consisting of H, F, Cl, Br, I, ethyl, propyl, butyl, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OCH_3, OC_2H_5, OC_3H_7, OC_4H_9, SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is $-(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



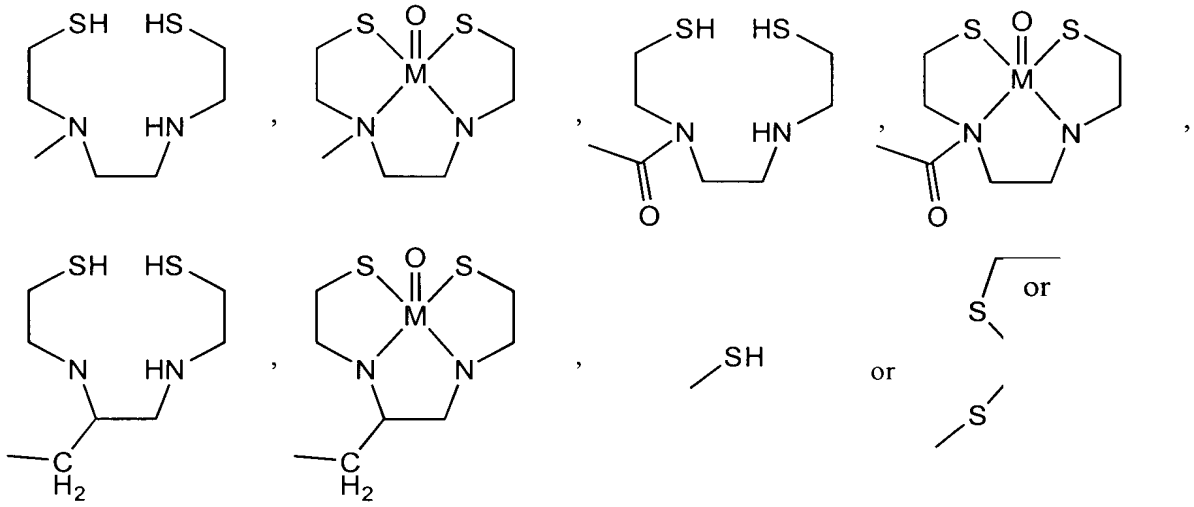
wherein M is selected from the group consisting of Tc and Re.

79. (Previously Presented) An amyloid binding compound of the following formula or a water soluble, non-toxic salt thereof:



wherein Z is S; Y is OCH_3; and

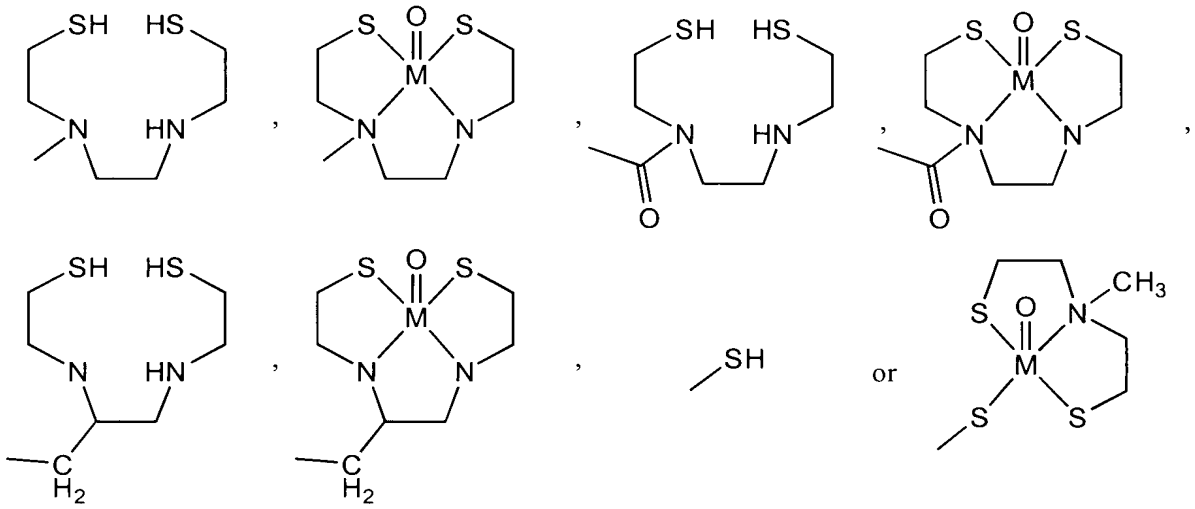
wherein R^3, R^4, R^5, R^6, R^7 and R^{10} are independently selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is $-(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



wherein M is selected from the group consisting of Tc and Re; and

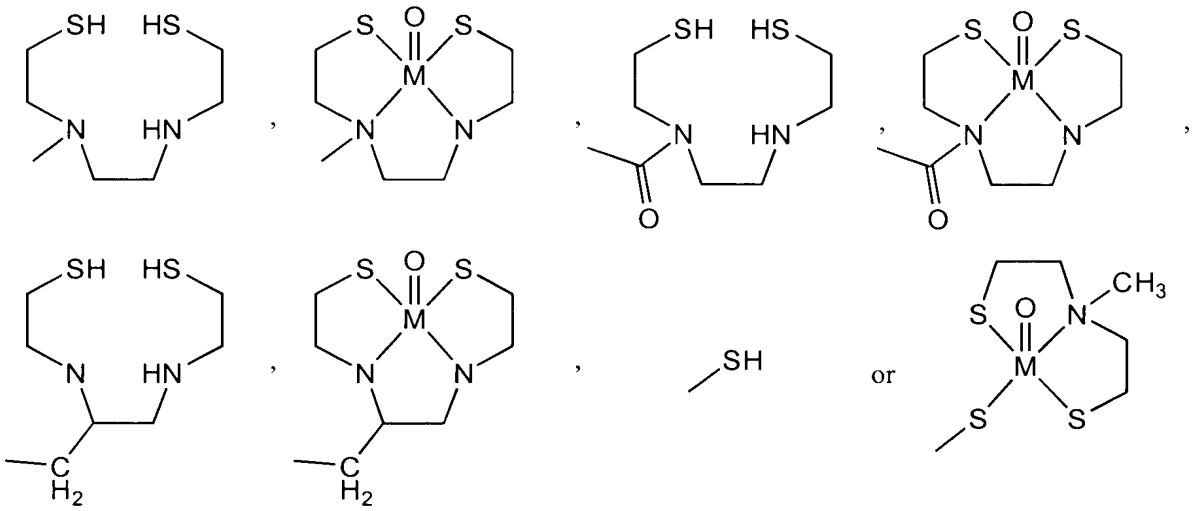
wherein R^8 is selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X,

O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $NHCH_3$, $N(CH_3)_2$, NHC_2H_5, $N(C_2H_5)_2$, NHC_3H_7, $N(C_3H_7)_2$, NHC_4H_9, $N(C_4H_9)_2$, (C=O)N(R')$_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is –$(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



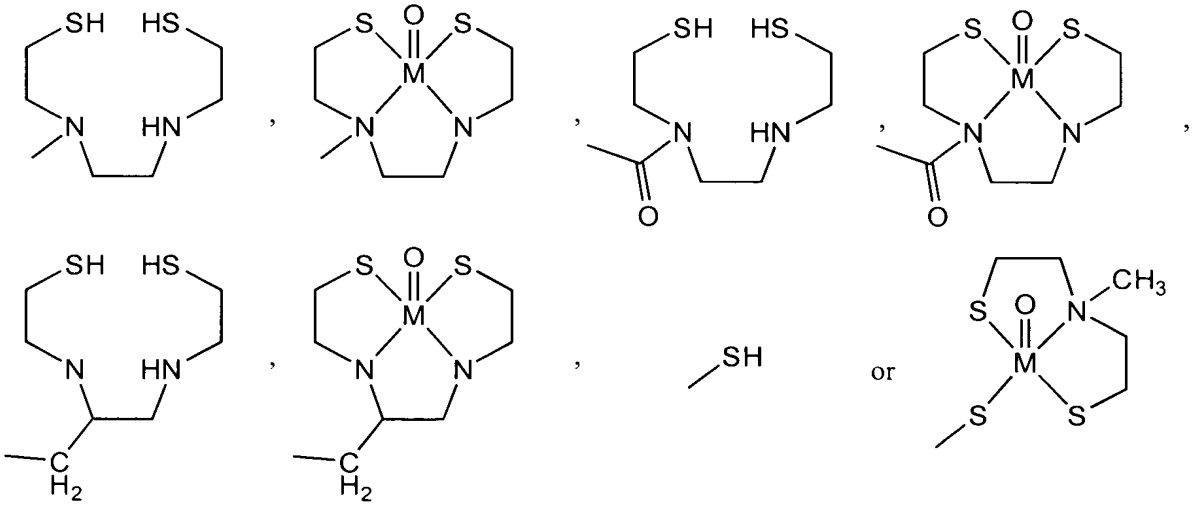
wherein M is selected from the group consisting of Tc and Re; and

wherein R^9 is selected from the group consisting of H, F, Cl, Br, I, ethyl, propyl, butyl, $(CH_2)_n$OR' (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', NH_2, $NHCH_3$, NHC_2H_5, $N(C_2H_5)_2$, NHC_3H_7, $N(C_3H_7)_2$, NHC_4H_9, $N(C_4H_9)_2$, NO_2, (C=O)N(R')$_2$, O(CO)R', OH, OC_2H_5, OC_3H_7, OC_4H_9, SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is –$(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



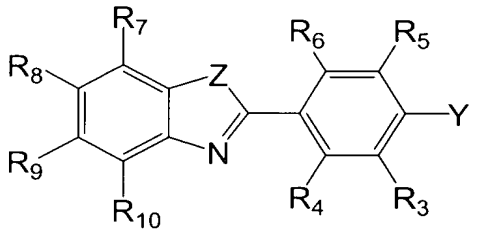
wherein M is selected from the group consisting of Tc and Re; and

wherein at least one of R^{3-10} is selected from the group consisting of F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is $-(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



wherein M is selected from the group consisting of Tc and Re.

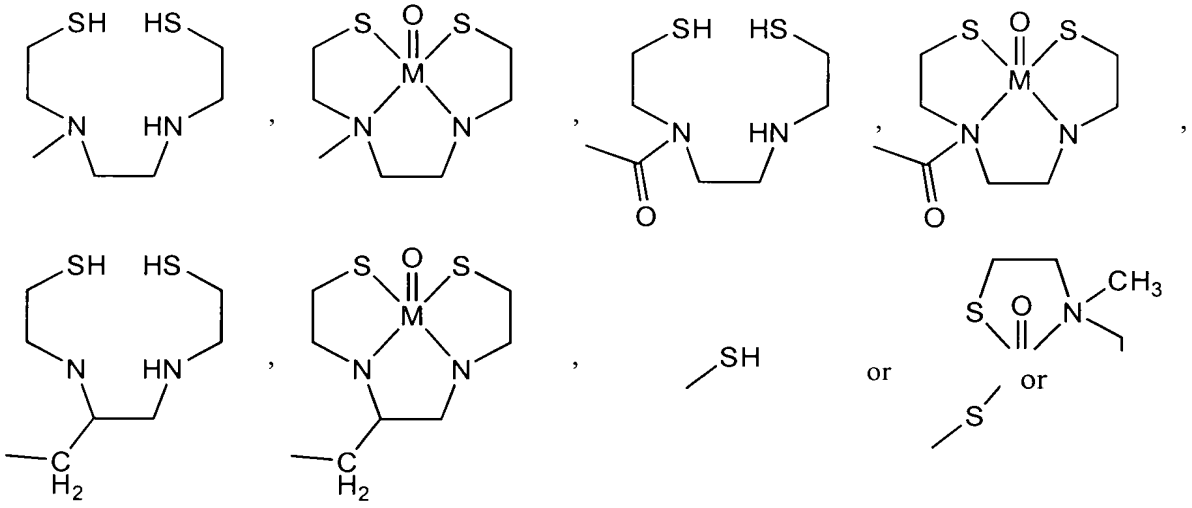
80. (Previously Presented) An amyloid binding compound of the following formula or a water soluble, non-toxic salt thereof:



wherein Z is S; Y is OR^2;

wherein R^2 is selected from the group consisting of ethyl, propyl, butyl, $(CH_2)_nOR'$ (wherein n=1, 2, or 3 and R' is H or a lower alkyl group), CF_3, CH_2-CH_2X, CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), (C=O)-R', R_{ph}, and $(CH_2)_nR_{ph}$ (wherein n= 1, 2, 3, or 4 and R_{ph} represents an optionally substituted phenyl group); or

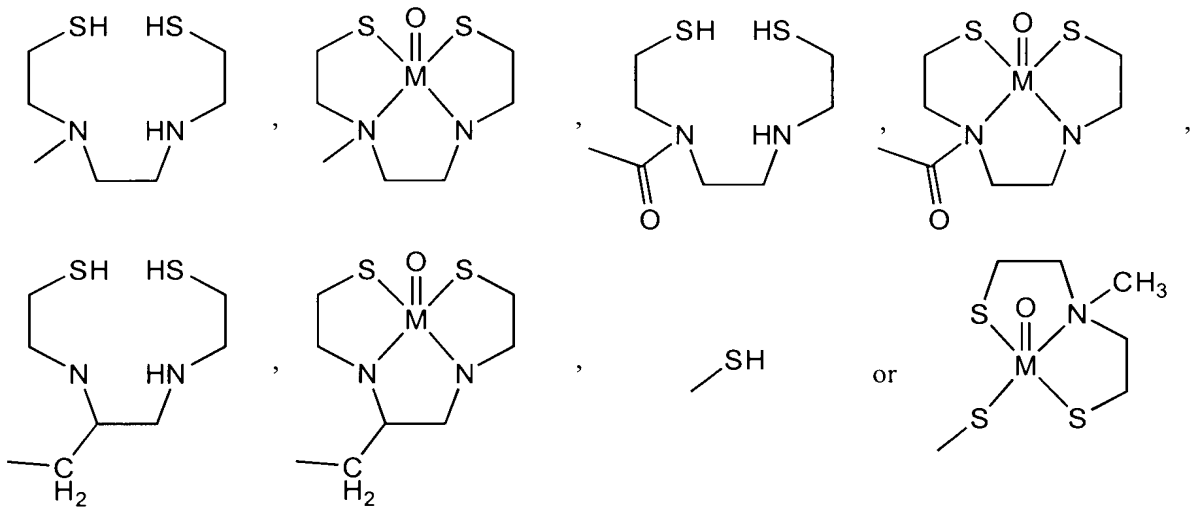
wherein R^2 is a chelating group (with or without a chelated metal group) of the form W-L, wherein W is $-(CH_2)_n$ where n=2,3,4, or 5; and L is:



wherein M is selected from the group consisting of Tc and Re; and

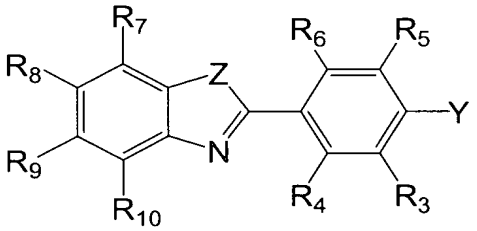
wherein $R^{3\text{-}10}$ are independently selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R'

is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, $-CH_2O-$ and $-CH_2NH-$; W is $-(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



wherein M is selected from the group consisting of Tc and Re.

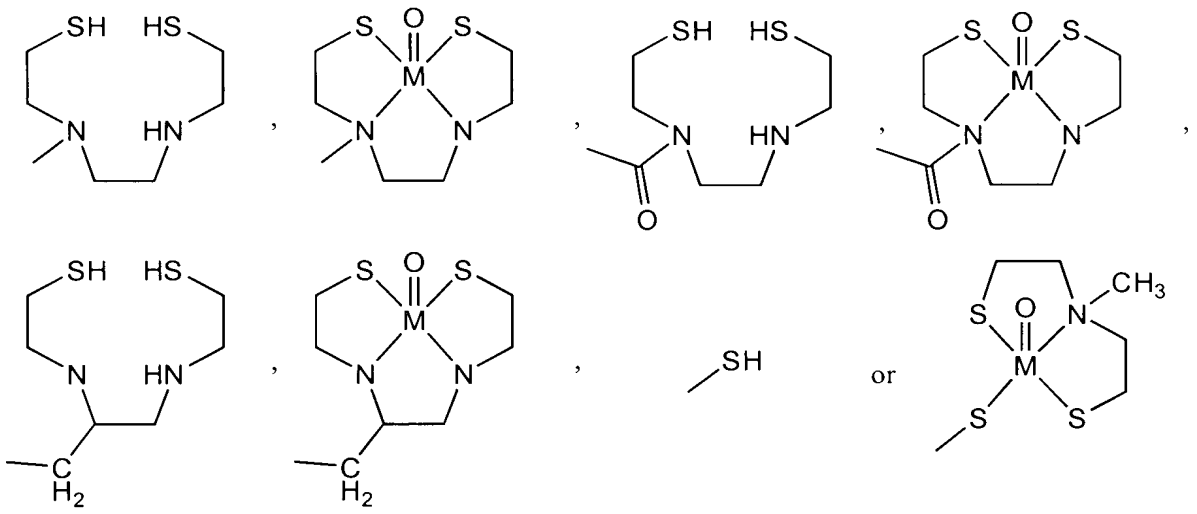
81. (Previously Presented) An amyloid binding compound of the following formula or a water soluble, non-toxic salt thereof:



wherein Y is NR^1R^2; Z is S; R^1 and R^2 are both H;

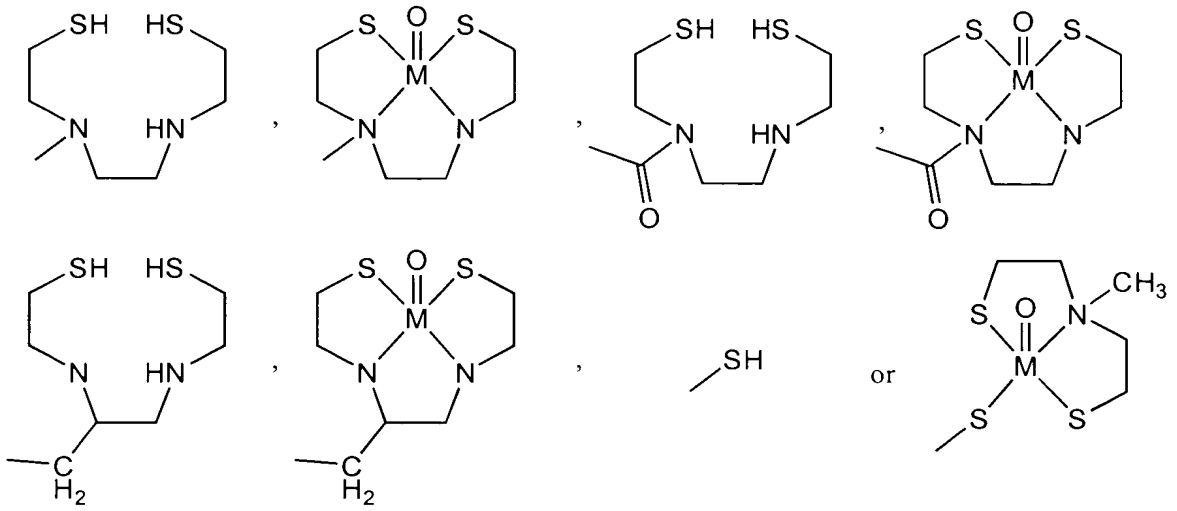
R^3 and R^5 are independently selected from the group consisting of H, F, propyl, butyl, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, $O-CH_2-CH_2X$, $CH_2-CH_2-CH_2X$, $O-CH_2-CH_2-CH_2X$ (wherein X=F, Cl, Br or I), (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OCH_3, OC_2H_5, OC_3H_7, OC_4H_9, SR', COOR', R_{ph}, CR'=CR'-R_{ph}, $CR_2'-CR_2'-R_{ph}$ (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or

V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is –$(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



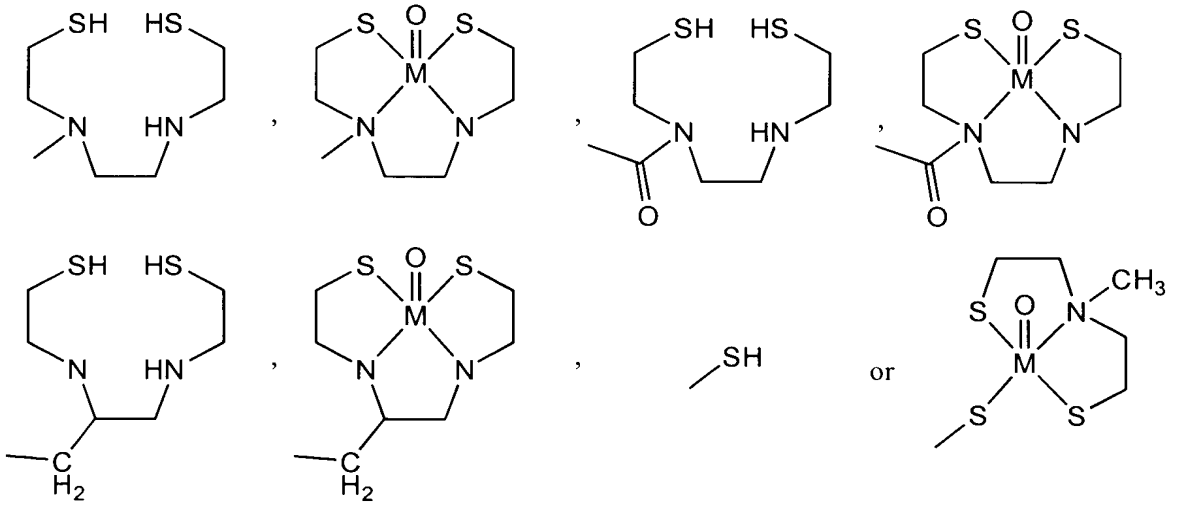
wherein M is selected from the group consisting of Tc and Re;

R^4 and R^6 are independently selected from the group consisting of H, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is –$(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



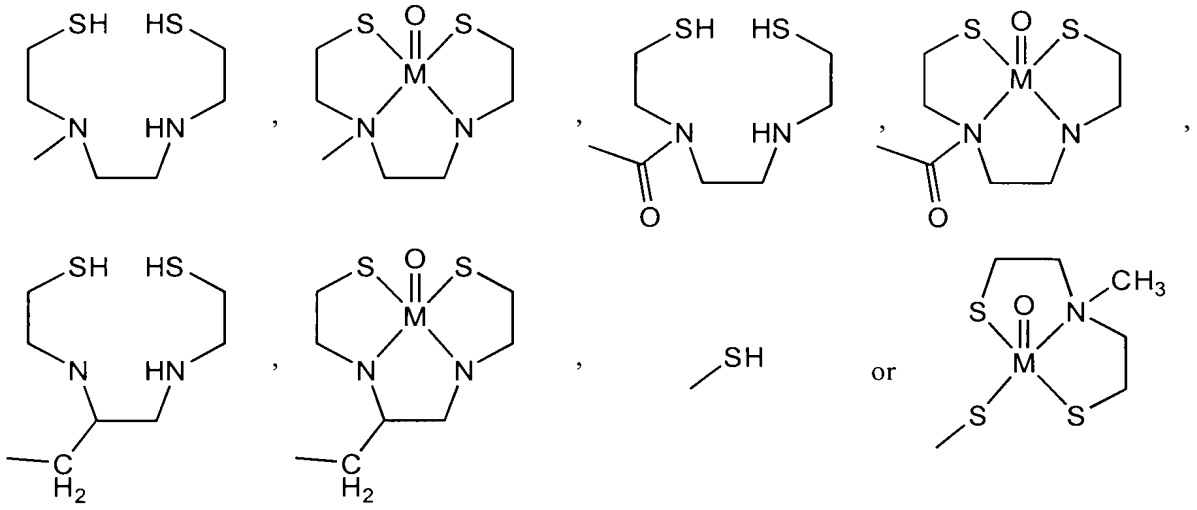
wherein M is selected from the group consisting of Tc and Re;

R^7 and R^{10} are independently selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is $–(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



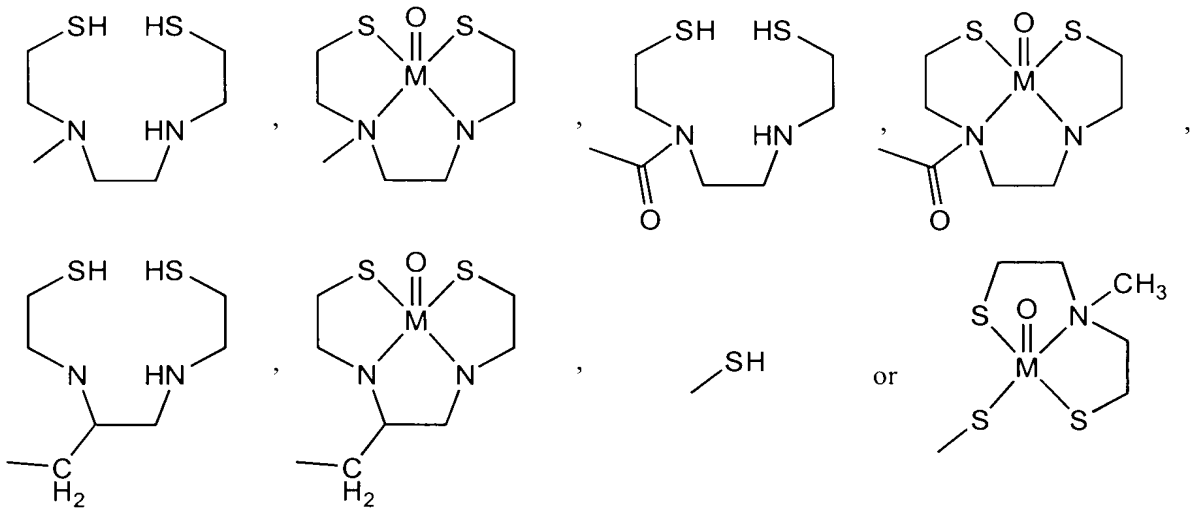
wherein M is selected from the group consisting of Tc and Re;

R^8 is selected from the group consisting of H, F, Cl, Br, I, ethyl, propyl, butyl, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $NHCH_3$, NHC_2H_5, $N(C_2H_5)_2$, NHC_3H_7, $N(C_3H_7)_2$, NHC_4H_9, $N(C_4H_9)_2$, NO_2, (C=O)$N(R')_2$, O(CO)R', OC_2H_5, OC_3H_7, OC_4H_9, SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is –$(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



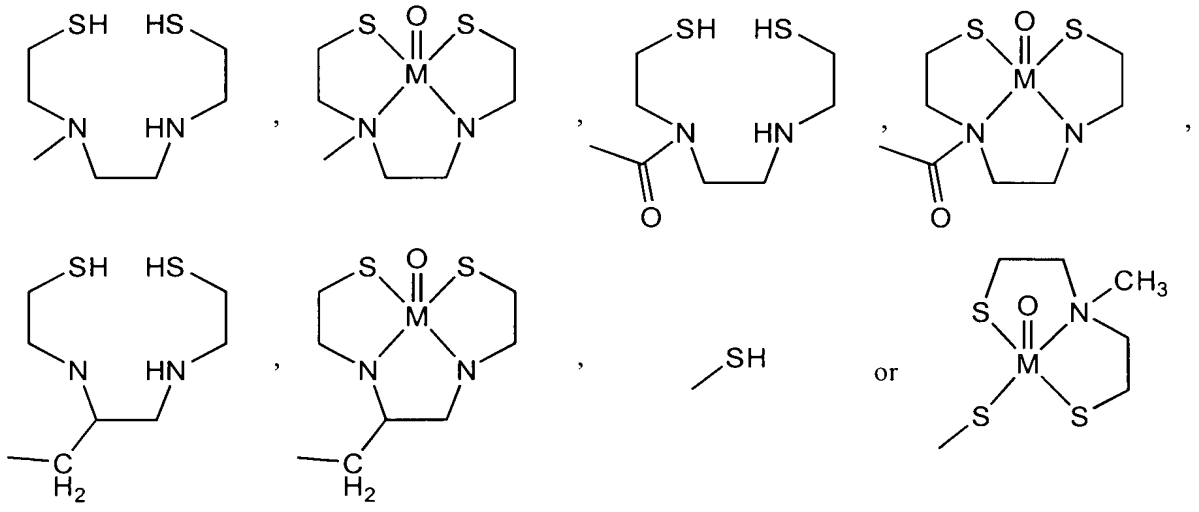
wherein M is selected from the group consisting of Tc and Re;

R^9 is selected from the group consisting of H, F, Cl, Br, I, ethyl, propyl, butyl, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, (C=O)$N(R')_2$, O(CO)R', OC_2H_5, OC_3H_7, OC_4H_9, SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is –$(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



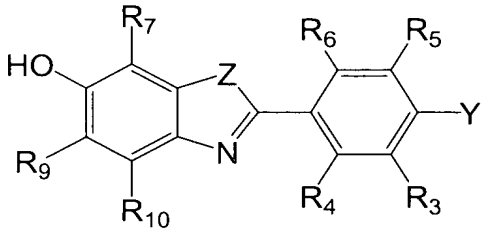
wherein M is selected from the group consisting of Tc and Re;

wherein at least one of R^3-R^{10} is selected from the group consisting of F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is –$(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



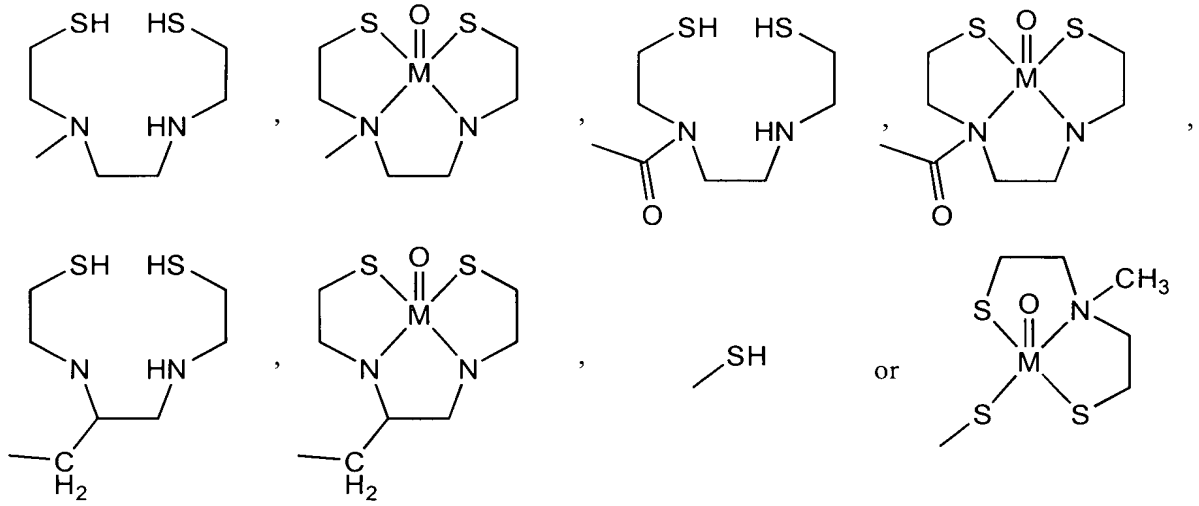
wherein M is selected from the group consisting of Tc and Re.

82. (Previously Presented) An amyloid binding compound of the following formula or a water soluble, non-toxic salt thereof:



wherein Y is NR^1R^2; Z is S; R^1 and R^2 are both H;

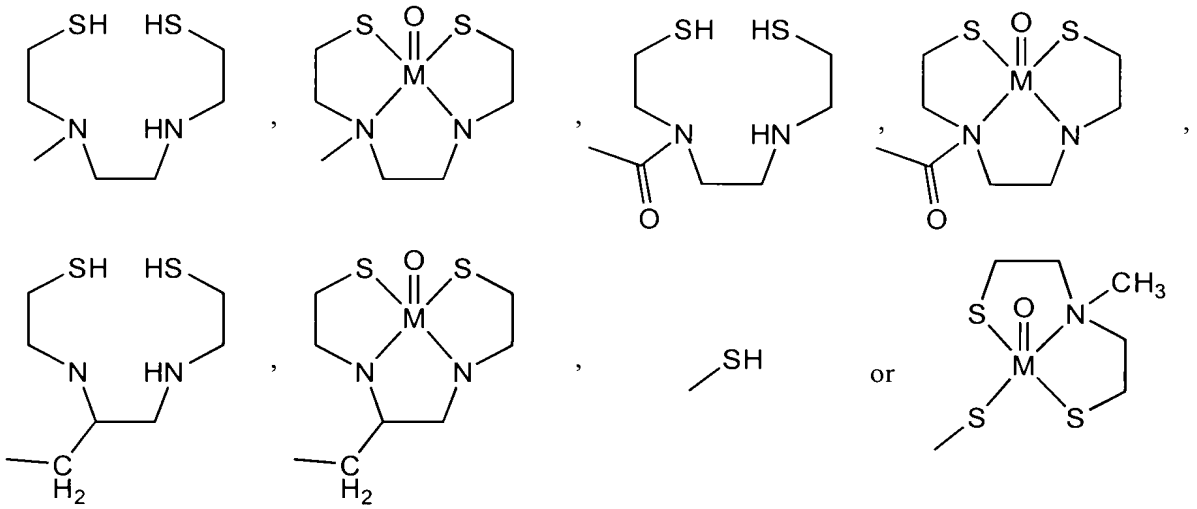
R^3, R^5, R^7, R^9 and R^{10} are independently selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, (C=O)$N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is –$(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



wherein M is selected from the group consisting of Tc and Re;

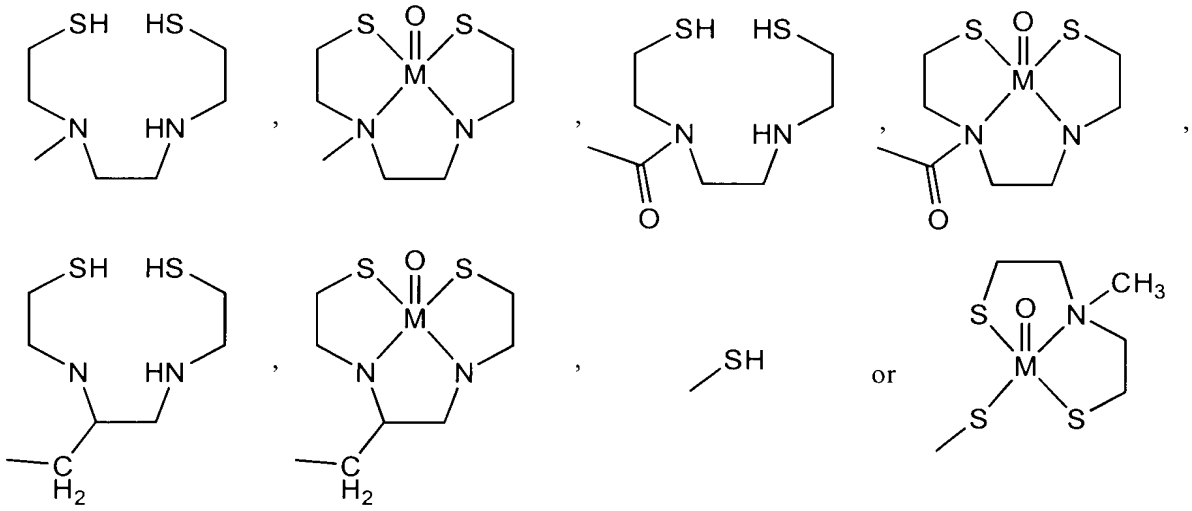
R^4 and R^6 are independently selected from the group consisting of H, F, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-

CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is –$(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



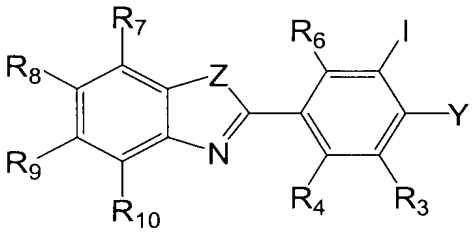
wherein M is selected from the group consisting of Tc and Re;

wherein at least one of R^3-R^7 and R^9-R^{10} is selected from the group consisting of F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is –$(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



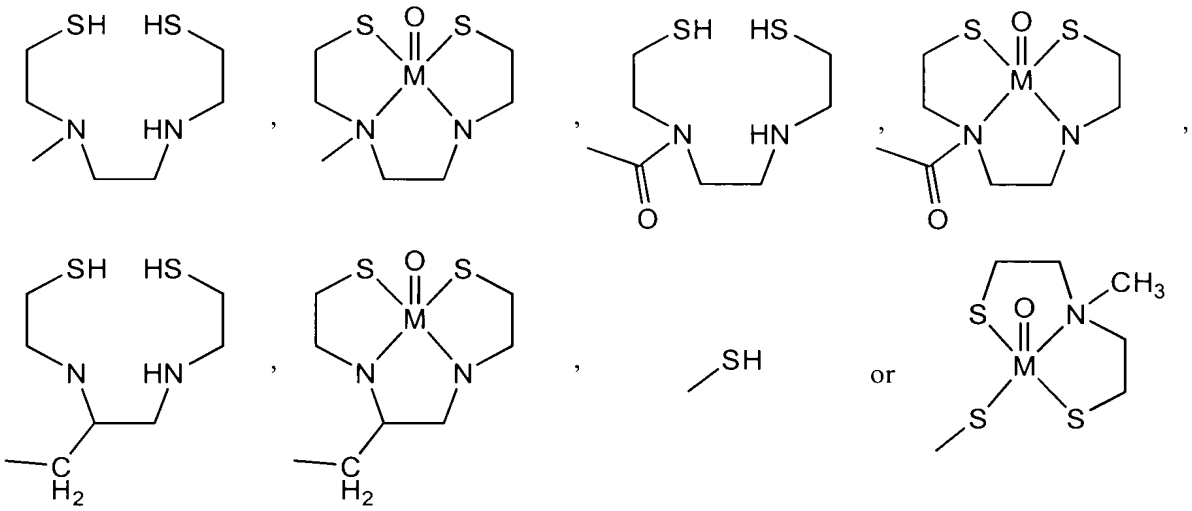
wherein M is selected from the group consisting of Tc and Re.

83. (Previously Presented) An amyloid binding compound of the following formula or a water soluble, non-toxic salt thereof:



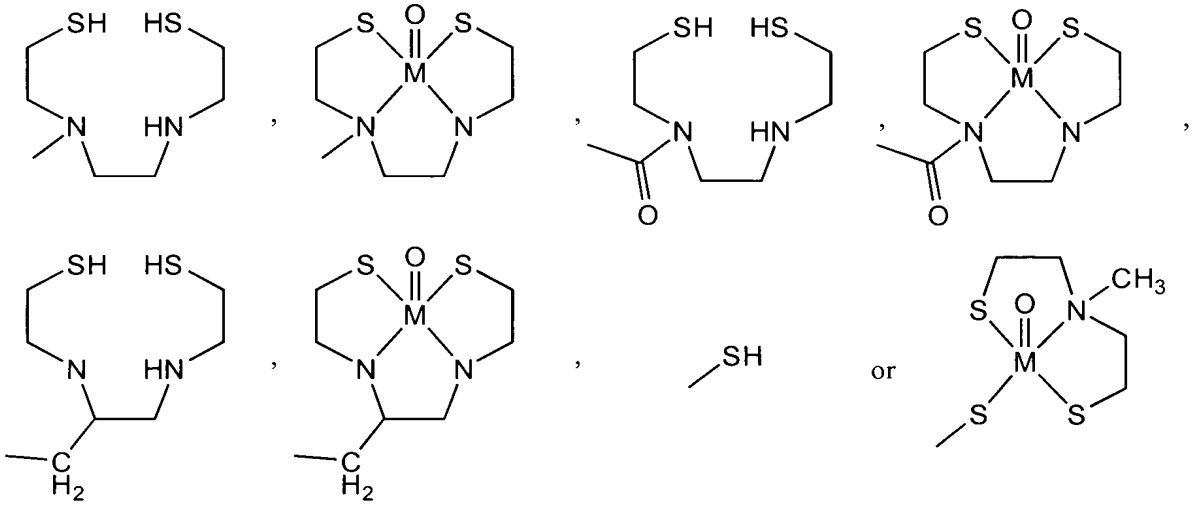
wherein Y is NR^1R^2; Z is S; R^1 and R^2 are both H;

R^3, R^4, R^6, R^7, R^9 and R^{10} are independently selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is –$(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



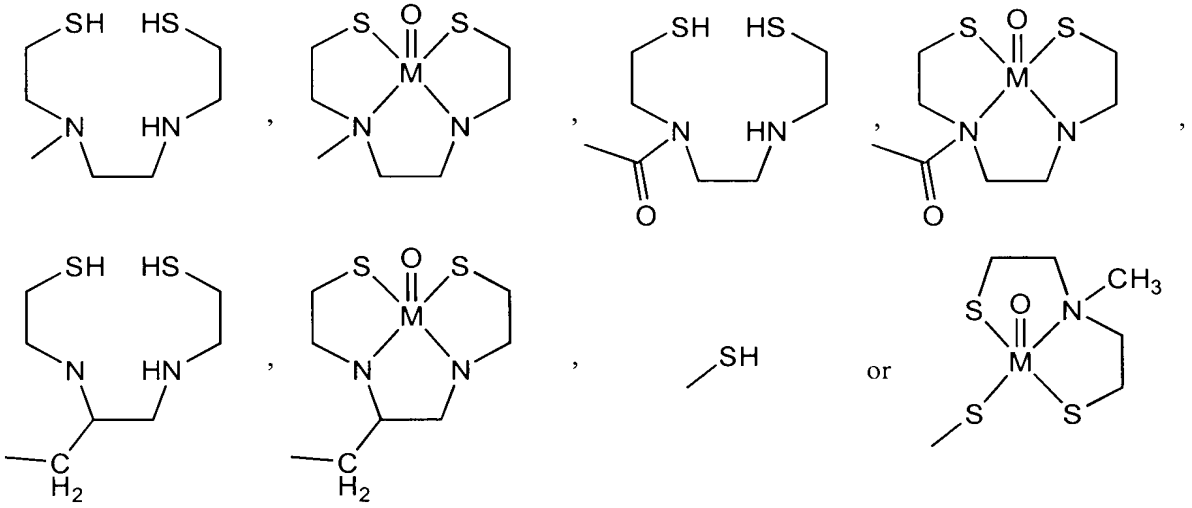
wherein M is selected from the group consisting of Tc and Re;

R^8 is selected from the group consisting of H, F, Cl, Br, I, ethyl, propyl, butyl, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OH, OC_2H_5, OC_3H_7, OC_4H_9, SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is $–(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



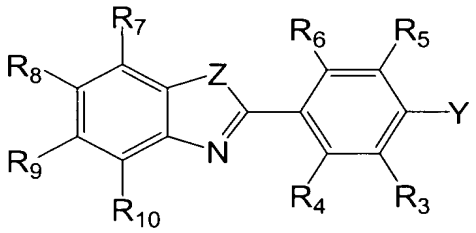
wherein M is selected from the group consisting of Tc and Re;

wherein at least one of R^3, R^4, and R^6-R^{10} is selected from the group consisting of F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, (C=O)$N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is –$(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



wherein M is selected from the group consisting of Tc and Re.

84. (Currently Amended) An amyloid binding compound of the following formula or a water soluble, non-toxic salt thereof:

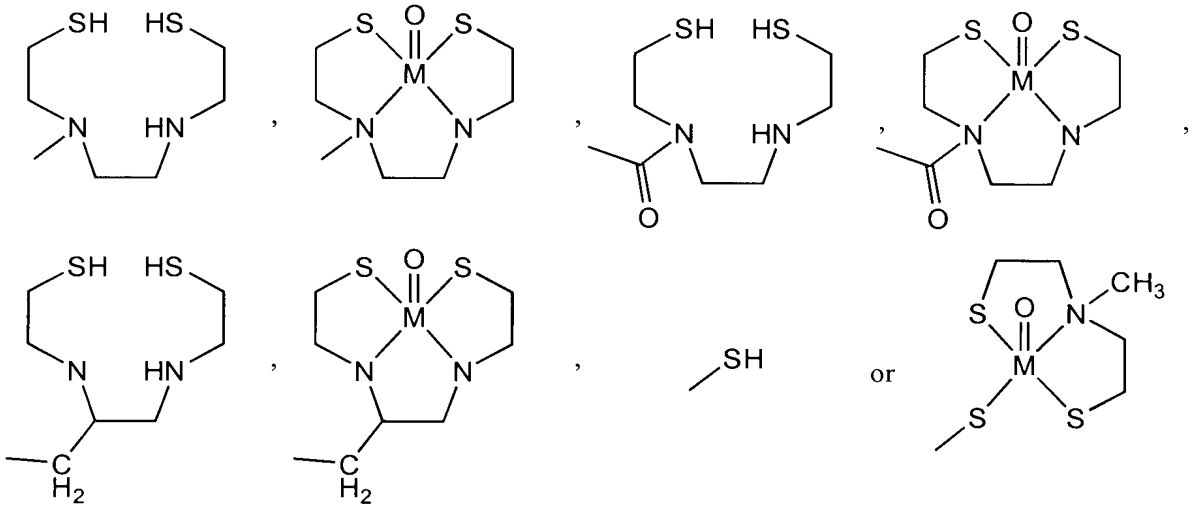


wherein Y is NR^1R^2; Z is S; R^1 is H;

wherein R^2 is selected from the group consisting of a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3 and R' is H or a lower alkyl group), CF_3, CH_2-CH_2X, CH_2-CH_2-CH_2X

(wherein X=F, Cl, Br or I), R_{ph}, and $(CH_2)_nR_{ph}$ (wherein n = 2, 3, or 4) R_{ph} represents an optionally substituted phenyl group); or

wherein R^2 is a chelating group (with or without a chelated metal group) of the form W-L, wherein W is $-(CH_2)_n$ where n=2,3,4, or 5; and L is:



wherein M is selected from the group consisting of Tc and Re;

R^3 ~~[– R^{10} are independently]~~ **is** selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', ~~[$N(R')_2$,]~~ NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group)~~[,]~~ **and** a tri-alkyl tin**;**

R^4 is selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), and a tri-alkyl tin;

R^5 is selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-

CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', NO_2, (C=O)N(R')$_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), and a tri-alkyl tin;

R^6 is selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_n$OR' (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', N(R')$_2$, NO_2, (C=O)N(R')$_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), and a tri-alkyl tin;

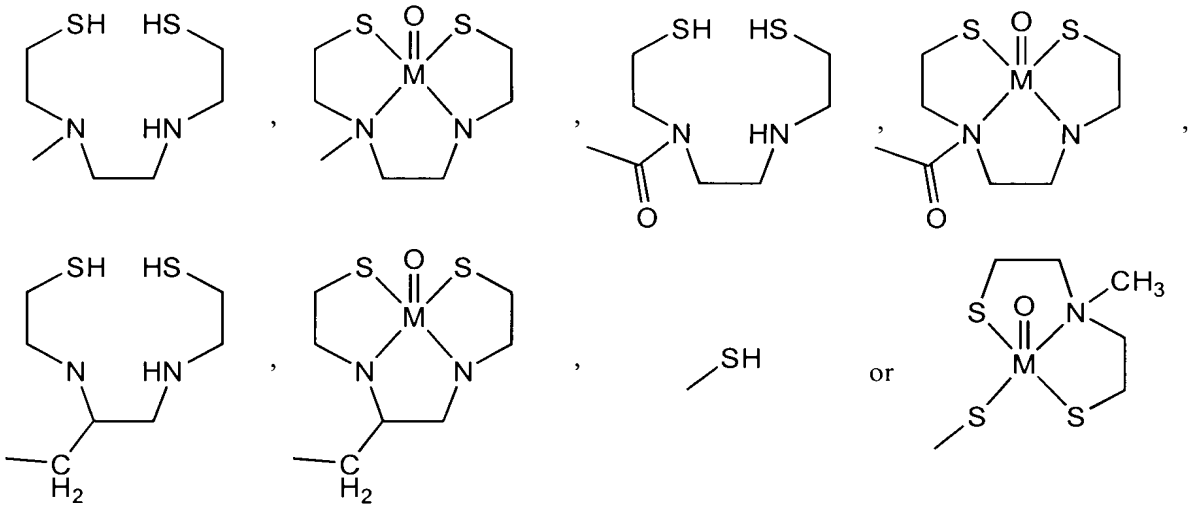
R^7 is selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_n$OR' (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', N(R')$_2$, NO_2, (C=O)N(R')$_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), and a tri-alkyl tin;

R^8 is selected from the group consisting of H, F, Cl, Br, I, ethyl, propyl, butyl, $(CH_2)_n$OR' (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', N(R')$_2$, NO_2, (C=O)N(R')$_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), and a tri-alkyl tin;

R^9 is selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_n$OR' (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', N(R')$_2$, NO_2, (C=O)N(R')$_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), and a tri-alkyl tin;

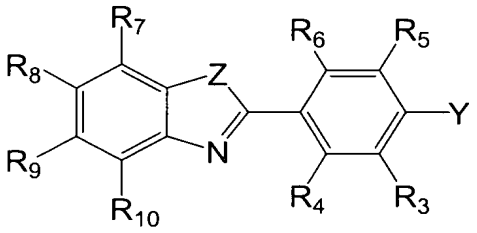
R^{10} is selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), and a tri-alkyl tin;

[and] or one of R^3-R^{10} is a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is –$(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



wherein M is selected from the group consisting of Tc and Re.

85. (Previously Presented) An amyloid binding compound of the following formula or a water soluble, non-toxic salt thereof:

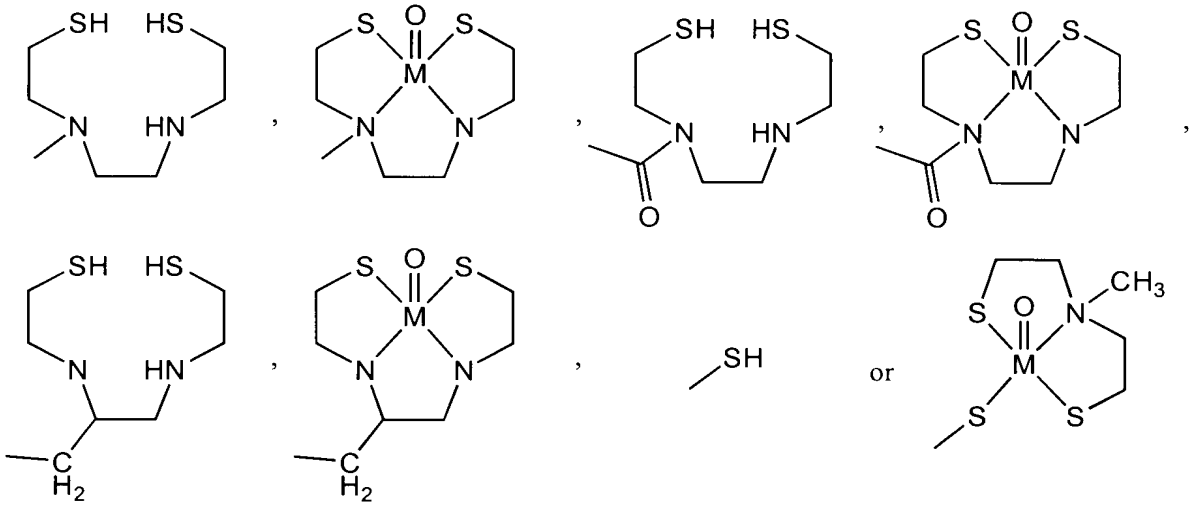


wherein Y is NR^1R^2; Z is S;

wherein R^1 is H and R^2 is CH_2R_{ph} or (C=O)-R' (wherein R' is H or a lower alkyl group); or

wherein R^1 and R^2 are both methyl or both ethyl;

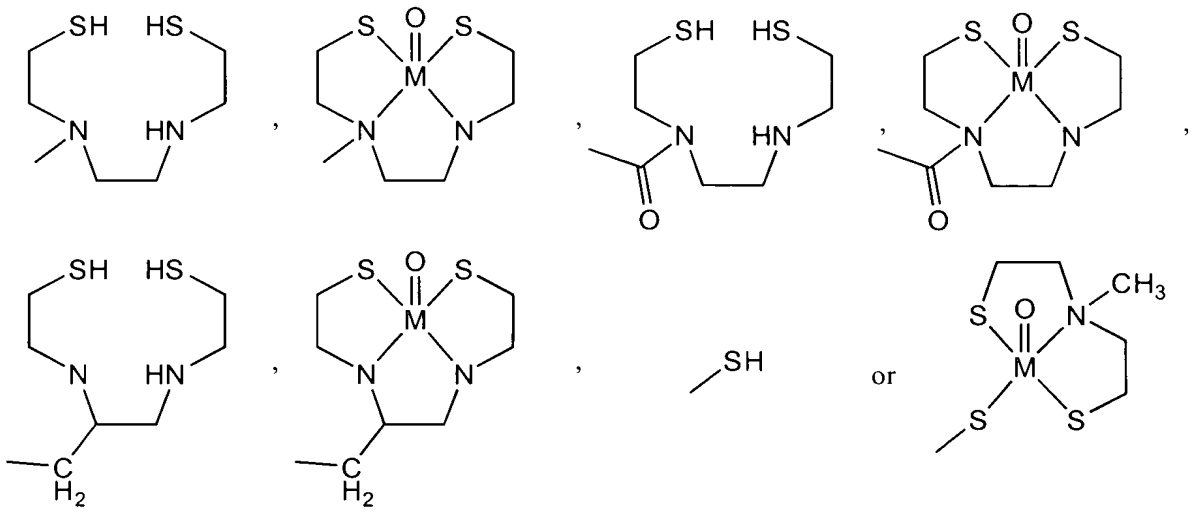
wherein each R^3-R^7 and R^{10} independently is selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group) a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is –$(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



wherein M is selected from the group consisting of Tc and Re;

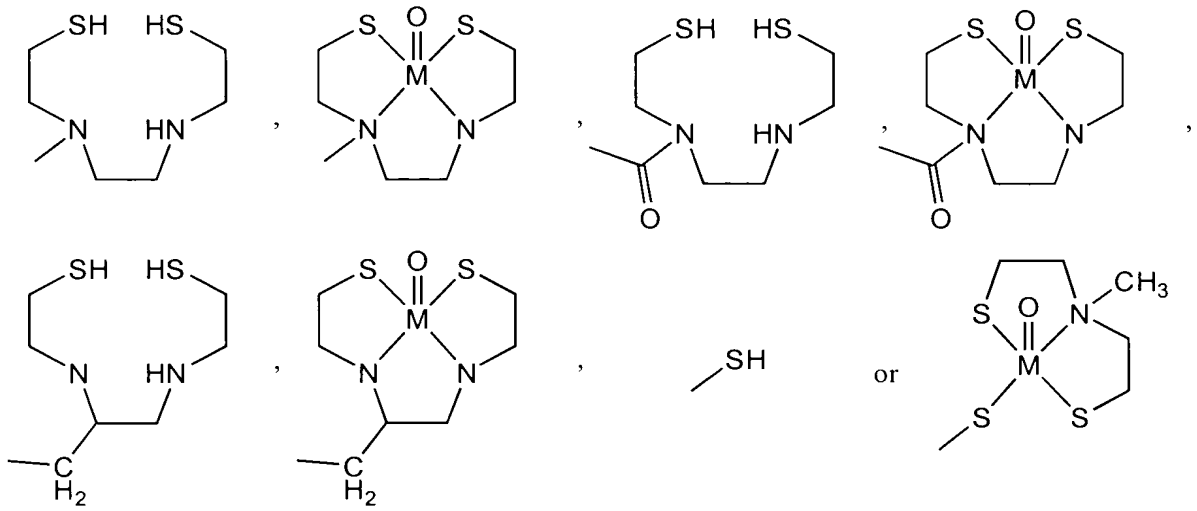
wherein R^8 is selected from the group consisting of H, F, Cl, Br, I, ethyl, propyl, butyl, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $NHCH_3$, NHC_2H_5, $N(C_2H_5)_2$, NHC_3H_7, $N(C_3H_7)_2$, NHC_4H_9, $N(C_4H_9)_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OH, OC_2H_5, OC_3H_7, OC_4H_9, SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group) a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is

selected from the group consisting of –COO-, -CO-, $-CH_2O-$ and $-CH_2NH-$; W is $-(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



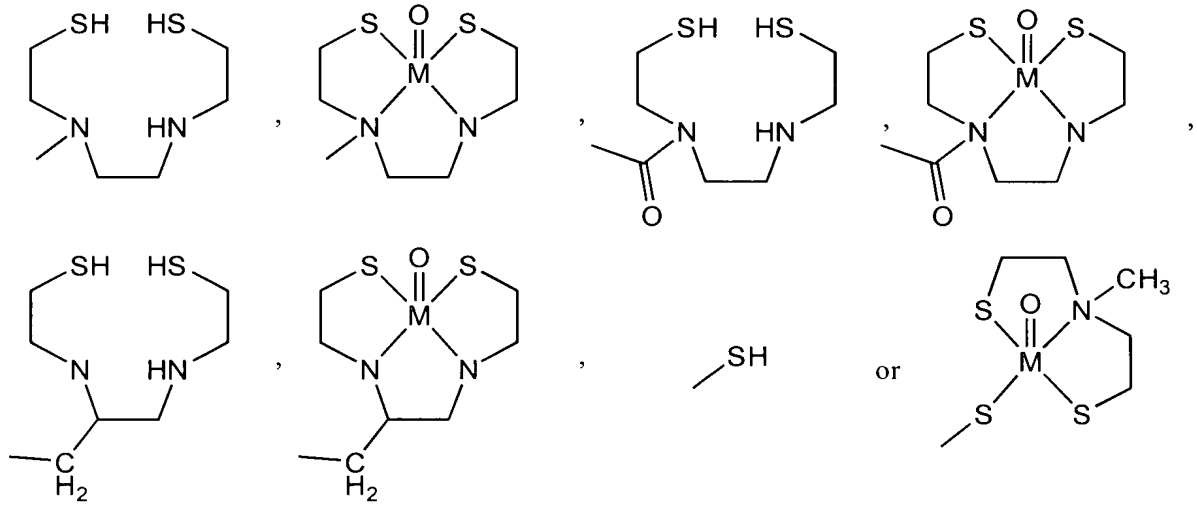
wherein M is selected from the group consisting of Tc and Re;

wherein R^9 is selected from the group consisting of H, F, Cl, Br, I, ethyl, propyl, butyl, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, $O-CH_2-CH_2X$, $CH_2-CH_2-CH_2X$, $O-CH_2-CH_2-CH_2X$ (wherein X=F, Cl, Br or I), CN, (C=O)-R', NH_2, $NHCH_3$, NHC_2H_5, $N(C_2H_5)_2$, NHC_3H_7, $N(C_3H_7)_2$, NHC_4H_9, $N(C_4H_9)_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OH, OC_2H_5, OC_3H_7, OC_4H_9, SR', COOR', R_{ph}, $CR'=CR'-R_{ph}$, $CR_2'-CR_2'-R_{ph}$ (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group) a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, $-CH_2O-$ and $-CH_2NH-$; W is $-(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



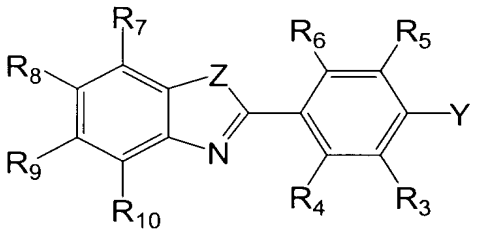
wherein M is selected from the group consisting of Tc and Re; and

wherein at least one of R^3-R^{10} is selected from the group consisting of F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group) a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is $-(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



wherein M is selected from the group consisting of Tc and Re.

86. (Previously Presented) An amyloid binding compound of the following formula or a water soluble, non-toxic salt thereof:

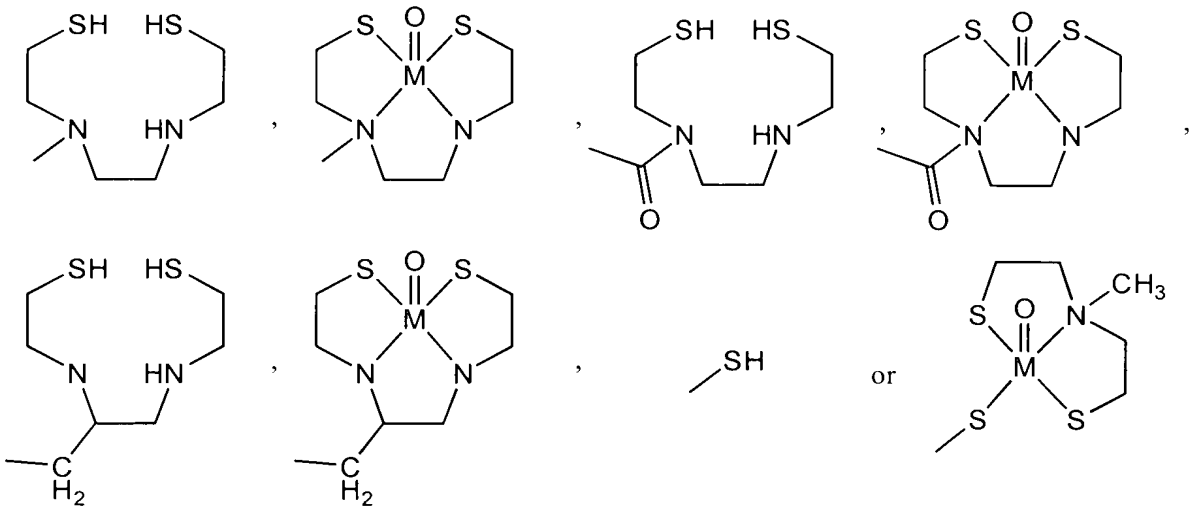


wherein Y is NR^1R^2; Z is S;

wherein R^1 and R^2 are both butyl or both CH_2R_{ph} (wherein R_{ph} represents an optionally substituted phenyl group); or

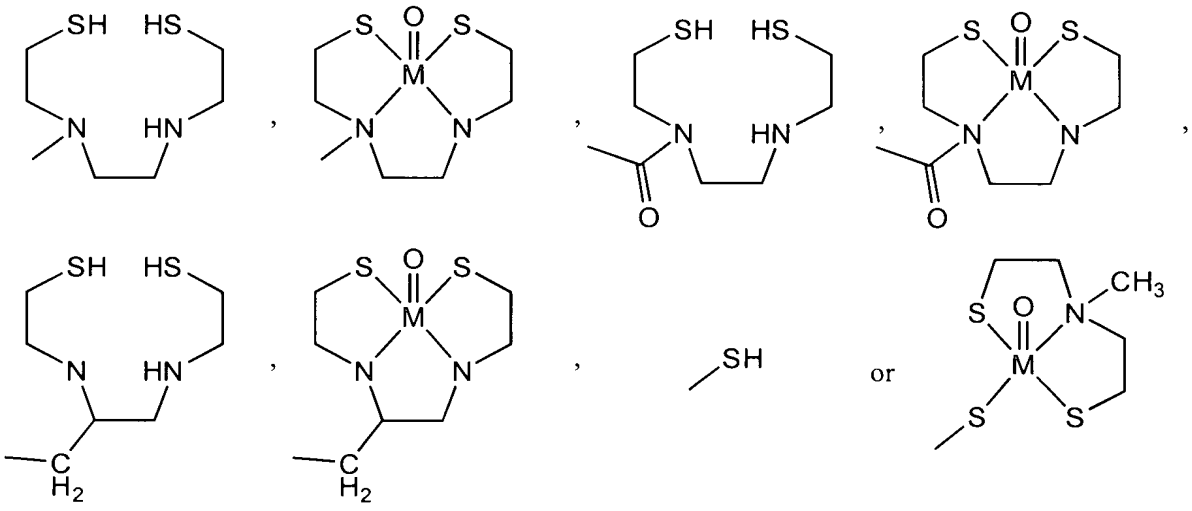
wherein R^1 is methyl and R^2 is selected from the group consisting of R_{ph}, CH_2R_{ph}, or (C=O)-R' (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group);

wherein each R^3- R^7 and R^9-R^{10} independently is selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, (C=O)$N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group) a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is $-(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



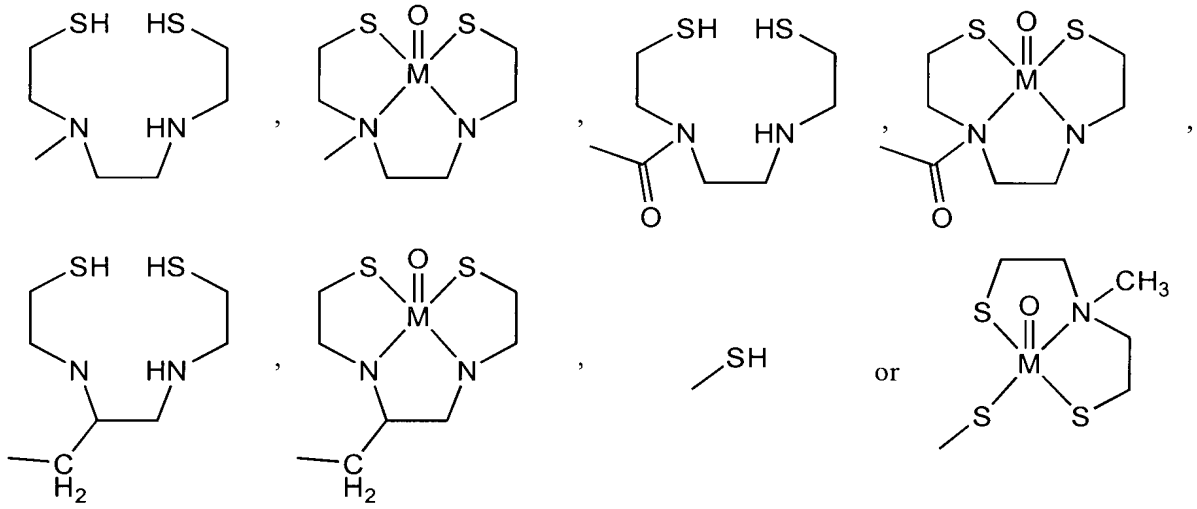
wherein M is selected from the group consisting of Tc and Re;

wherein R^8 is selected from the group consisting of H, F, Cl, Br, I, ethyl, propyl, butyl, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, (C=O)$N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group) a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is –$(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



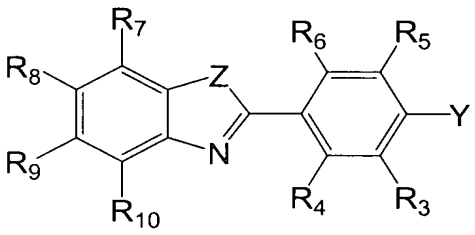
wherein M is selected from the group consisting of Tc and Re; and

wherein at least one of R^3-R^{10} is selected from the group consisting of F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group) a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, $-CH_2O-$ and $-CH_2NH-$; W is $-(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



wherein M is selected from the group consisting of Tc and Re.

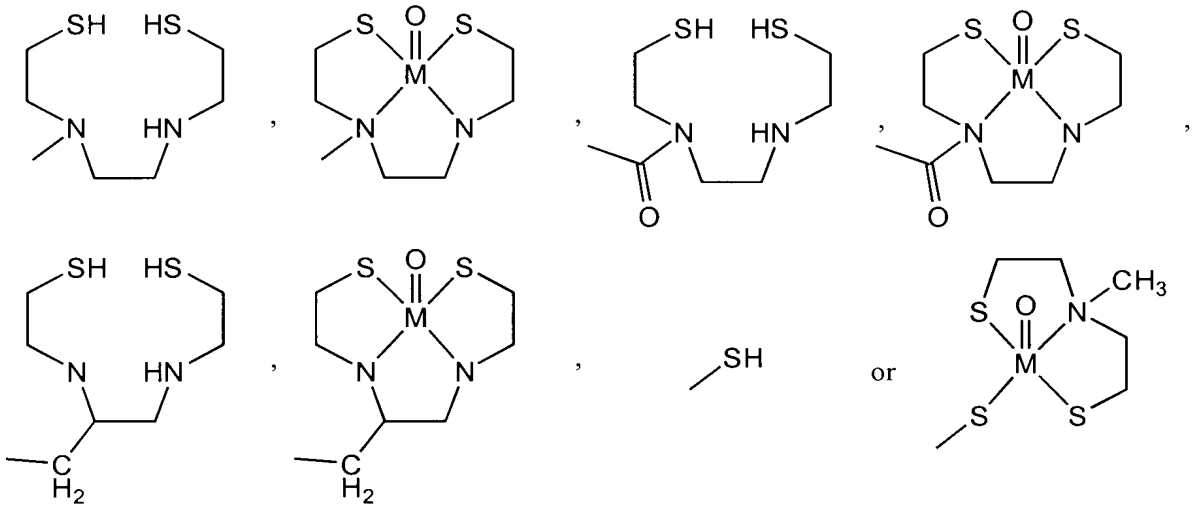
87. (Previously Presented) An amyloid binding compound of the following formula or a water soluble, non-toxic salt thereof:



wherein Y is NR^1R^2; Z is S; R^1 is methyl;

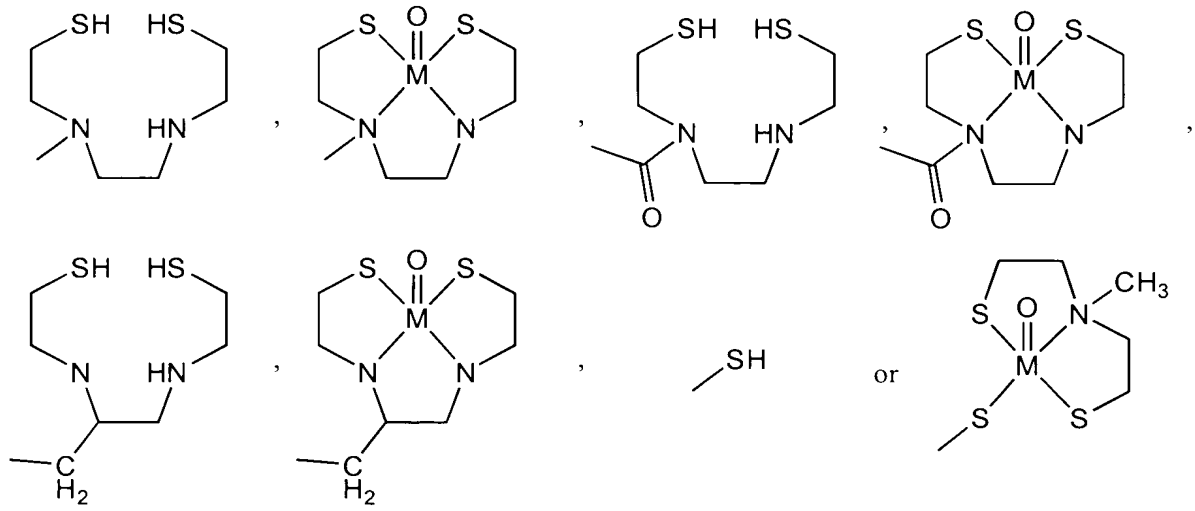
wherein R^2 is selected from the group consisting of a ethyl, propyl, butyl, $(CH_2)_nOR'$ (wherein n=1, 2, or 3 and R' is H or a lower alkyl group), CF_3, CH_2-CH_2X, CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), and $(CH_2)_nR_{ph}$ (wherein n= 2, 3, or 4 and R_{ph} represents an optionally substituted phenyl group); or

wherein R^2 is a chelating group (with or without a chelated metal group) of the form W-L, wherein W is $-(CH_2)_n$ where n=2,3,4, or 5; and L is:



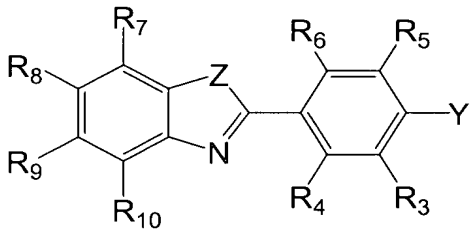
wherein M is selected from the group consisting of Tc and Re;

R^3 - R^{10} are independently selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, $-CH_2O-$ and $-CH_2NH-$; W is $-(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



wherein M is selected from the group consisting of Tc and Re.

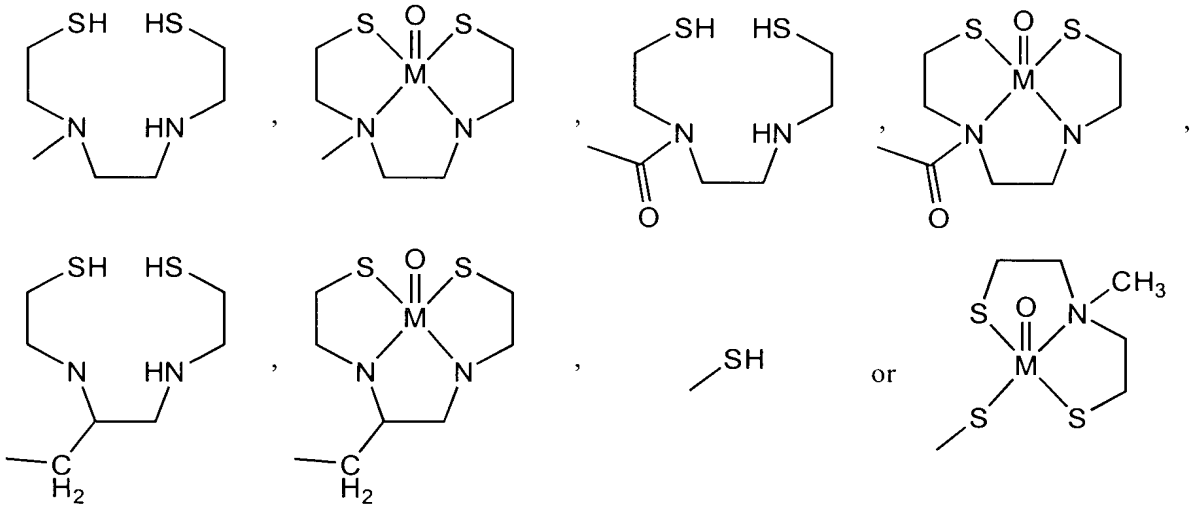
88. (Previously Presented) An amyloid binding compound of the following formula or a water soluble, non-toxic salt thereof:



wherein Y is NR^1R^2; Z is S;

wherein R^1 is selected from the group consisting of a propyl, $(CH_2)_nOR'$ (wherein n=1, 2, or 3 and R' is H or a lower alkyl group), CF_3, CH_2-CH_2X, CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), (C=O)-R', R_{ph}, and $(CH_2)_nR_{ph}$ (wherein n= 1, 2, 3, or 4 and R_{ph} represents an optionally substituted phenyl group); or

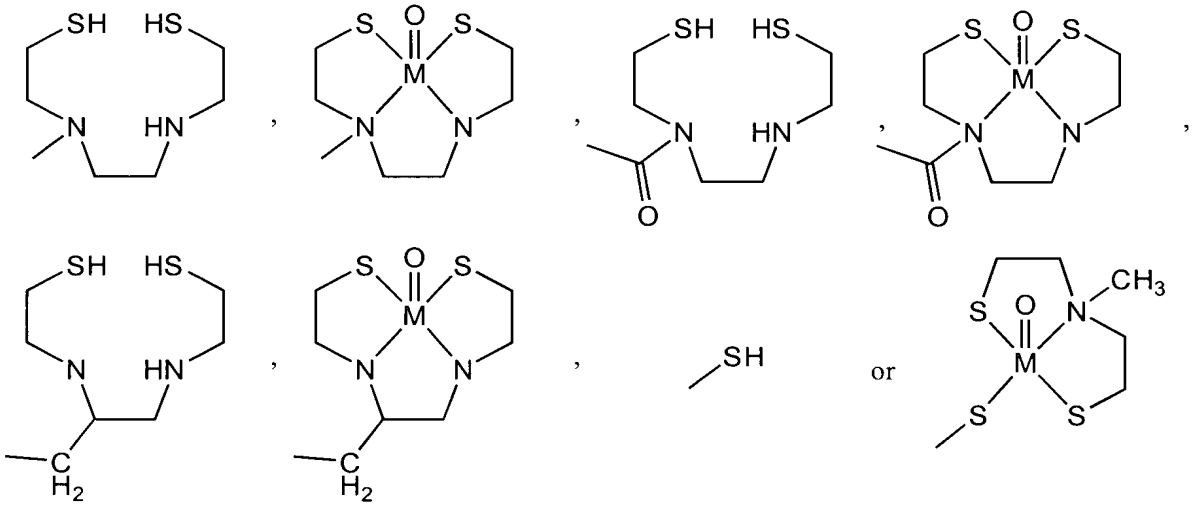
wherein R^1 is a chelating group (with or without a chelated metal group) of the form W-L, wherein W is $-(CH_2)_n$ where n=2,3,4, or 5; and L is:



wherein M is selected from the group consisting of Tc and Re;

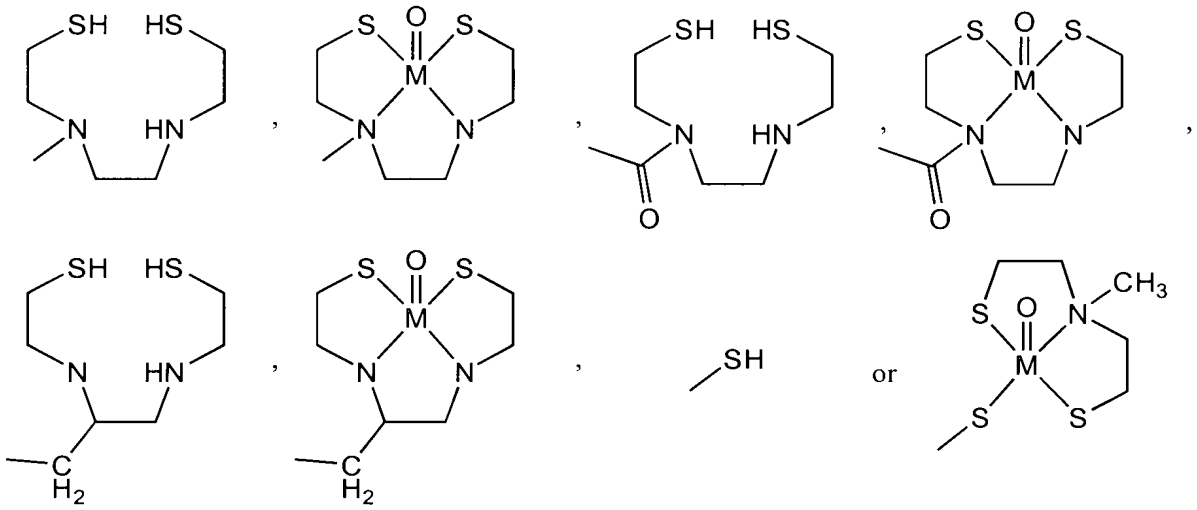
wherein R^2 is selected from the group consisting of a ethyl, propyl, butyl, $(CH_2)_nOR'$ (wherein n=1, 2, or 3 and R' is H or a lower alkyl group), CF_3, CH_2-CH_2X, CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), (C=O)-R', R_{ph}, and $(CH_2)_nR_{ph}$ (wherein n= 2, 3, or 4 and R_{ph} represents an optionally substituted phenyl group); or

wherein R^2 is a chelating group (with or without a chelated metal group) of the form W-L, wherein W is $-(CH_2)_n$ where n=2,3,4, or 5; and L is:



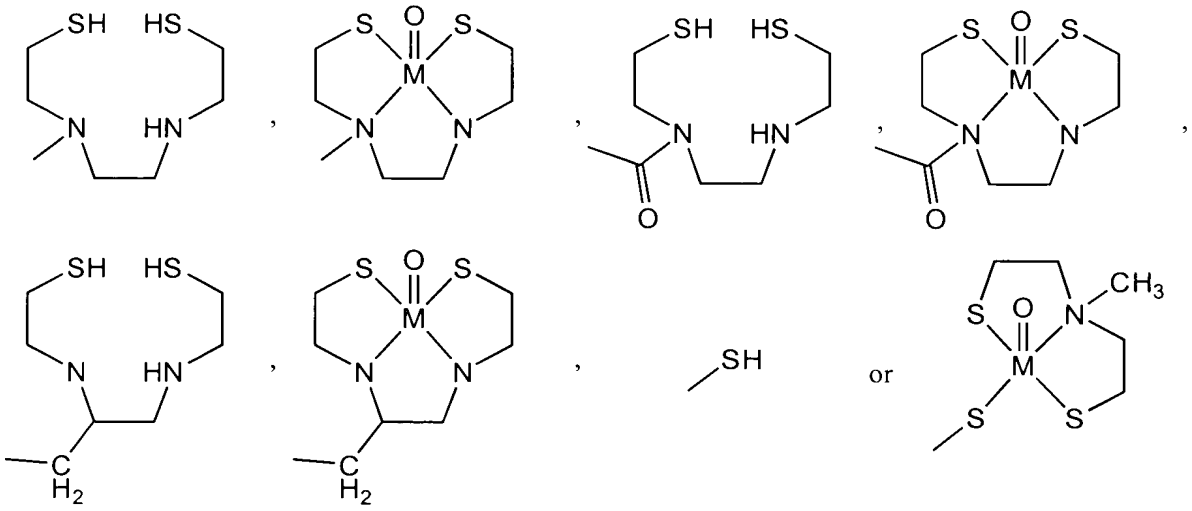
wherein M is selected from the group consisting of Tc and Re;

wherein each $R^3 - R^{10}$ independently is selected from the group consisting of H, F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR', R_{ph}, CR'=CR'-R_{ph}, CR_2'-CR_2'-R_{ph} (wherein R' is H or a lower alkyl group and R_{ph} represents an optionally substituted phenyl group) a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is $-(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



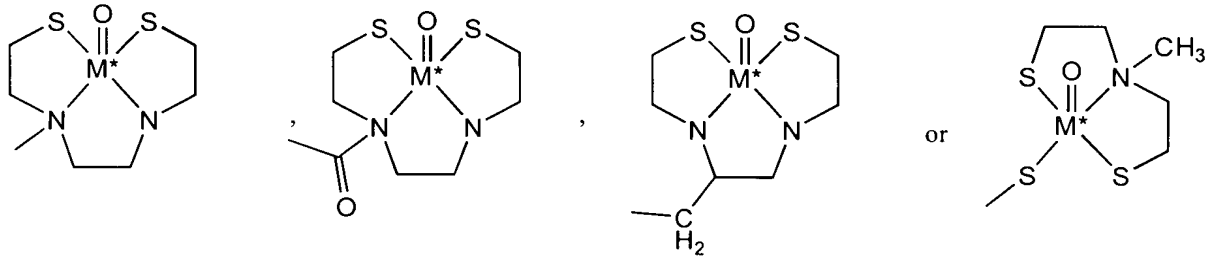
wherein M is selected from the group consisting of Tc and Re.

89. (Previously Presented) The compound of any of claims 78-88 wherein the optional substituents of R_{ph} are selected from the group consisting of F, Cl, Br, I, a lower alkyl group, $(CH_2)_nOR'$ (wherein n=1, 2, or 3), CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', $N(R')_2$, NO_2, $(C=O)N(R')_2$, O(CO)R', OR', SR', COOR' (wherein R' is H or a lower alkyl group), a tri-alkyl tin and a chelating group (with or without a chelated metal group) of the form W-L or V-W-L, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is $-(CH_2)_n$ where n=0,1,2,3,4, or 5; and L is:



wherein M is selected from the group consisting of Tc and Re.

90. (Currently Amended) The compound of any of **claims [claim]** 78-88, wherein at least one of the substituents R^1-R^{10} is selected from the group consisting of ^{3}H, ^{131}I, ^{125}I, ^{123}I, ^{76}Br, ^{75}Br, ^{18}F, CH_2-CH_2-X*, O-CH_2-CH_2-X*, CH_2-CH_2-CH_2-X*, O- CH_2-CH_2-CH_2-X* (wherein X* = ^{131}I, ^{123}I, ^{76}Br, ^{75}Br or ^{18}F), ^{19}F, ^{125}I, a carbon-containing substituent selected from the group consisting of lower alkyl, (CH2)nOR', CF_3, CH_2-CH_2X, O-CH_2-CH_2X, CH_2-CH_2-CH_2X, O-CH_2-CH_2-CH_2X (wherein X=F, Cl, Br or I), CN, (C=O)-R', (C=O)N(R')$_2$, O(CO)R', COOR', CR'=CR'-R_{ph} and CR_2'-CR_2'-R_{ph} wherein at least one carbon is ^{11}C, ^{13}C or ^{14}C and a chelating group (with chelated metal group) of the form W-L* or V-W-L*, wherein V is selected from the group consisting of –COO-, -CO-, -CH_2O- and -CH_2NH-; W is –$(CH_2)_n$ where n=0,1,2,3,4, or 5; and L* is:



wherein M* is ^{99m}Tc.

91. (Previously Presented) The compound of claim 84, wherein, R^2=CH_3 and R^3- R^{10} are H.

92. (Previously Presented) The compound of claim 78, wherein R^3 - R^4=H, R^5=I, and R^6- R^{10} are H.

93. (Previously Presented) The compound of claim 82, wherein R^3 - R^4=H, R^5=I, and R^6- R^7 and R^9- R^{10} are H.

94. (Previously Presented) The compound of claim 82, wherein R^3 - R^6=H, R^7=I, and R^9- R^{10} are H.

95. (Previously Presented) The compound of claim 82, wherein R^3 - R^7=H, R^9=I, and R^{10}=H.

96. (Previously Presented) The compound of claim 78, wherein R^2 - R^4=H, R^5=I, R^8=OH and R^6- R^7 and R^9- R^{10} are H.

97. (Previously Presented) The compound of claim 79, wherein R^3 - R^4=H, R^5=I, R^8=OH and R^6- R^7 and R^9- R^{10} are H.

98. (Previously Presented) The compound of claim 79, wherein R^3 - R^6=H, R^7=I, R^8=OH and R^9- R^{10} are H.

99. (Previously Presented) The compound of claim 79, wherein R^3 - R^7=H, R^8=OH, R^9=I, and R^{10}=H.

100. (Previously Presented) The compound of claim 84, wherein, R^2= CH_2-CH_2-CH_2-F and R^3- R^{10} are H.

101. (Previously Presented) The compound of claim 80, wherein, R^2= CH_2-CH_2-F and R^3- R^{10} are H.

102. (Previously Presented) The compound of claim 81, wherein R^3 - R^7=H, R^8=O-CH_2-CH_2-F and R^9- R^{10} are H.

103. (Previously Presented) The compound of claim 78, wherein R^3- R^7=H, R^8=O-CH_2-CH_2-F and R^9- R^{10} are H.

104. (Previously Presented) The compound of claim 84, wherein R^2=CH_3, R^3 - R^7=H, R^8=O-CH_2-CH_2-F and R^9- R^{10} are H.

105. (Previously Presented) The compound of claim 79, wherein R^3 - R^7=H, R^8=O-CH_2-CH_2-F and R^9- R^{10} are H.

106. (Previously Presented) The compound of claim 84, wherein R^2=CH_3, R^3 - R^7=H, R^8=OH and R^9- R^{10} are H.

107. (Previously Presented) The compound of claim 79, wherein R^3 - R^7=H, R^8=OH and R^9- R^{10} are H.

108. (Previously Presented) The compound of claim 84, wherein R^2= CH_2-CH_2-CH_2-F, R^3 - R^7=H, R^8=OH and R^9- R^{10} are H.

109. (Previously Presented) The compound of claim 87, wherein R^2= CH_2-CH_2-CH_2-F, R^3 - R^7=H, R^8=OH and R^9- R^{10} are H.

110. (Previously Presented) The compound of claim 80, wherein R^2= CH_2-CH_2-F, R^3 - R^7=H, R^8=OH and R^9- R^{10} are H.

111. (Previously Presented) The compound of claim 84, wherein R^2=CH_3 and R^8 is selected from the group consisting of CN, CH_3, OH, OCH_3 and NH_2.

112. (Previously Presented) The compound of claim 79, wherein R^8 is selected from the group consisting of CN, CH_3, OH, OCH_3 and NH_2.

113. (Previously Presented) The compound of either of claims 111 or 112, wherein R^3- R^7 and R^9- R^{10} are H.

114. (Previously Presented) The compound of claim any of claims 78-88, wherein the compound binds to Aβ with a dissociation constant (K_D) between 0.0001 and 10.0μM when measured by binding to synthetic Aβ peptide or Alzheimer's Disease brain tissue.

115. (Currently Amended) A method for synthesizing a compound of any of claims 78-83 or 85-88 wherein at least one of the substituents R^1-R^{10} is selected from the group consisting of ^{131}I, ^{125}I, ^{123}I, ^{76}Br, ^{75}Br, ^{18}F, and ^{19}F, comprising the step of labeling a compound of any of claims 78-83 or 85-88 wherein at least one of the substituents R^1-R^{10} is a tri-alkyl tin, by reaction of a compound of any of claims ~~[44-49 or 51-54]~~ **78-83 or 85-88** with a ^{131}I, ^{125}I, ^{123}I, ^{76}Br, ^{75}Br, ^{18}F, or ^{19}F containing substance.

116. (Previously Presented) A method for synthesizing a compound of claim 84 having at least one of the substituents R^3- R^{10} selected from the group consisting of ^{131}I, ^{125}I, ^{123}I, ^{76}Br, ^{75}Br, ^{18}F, and ^{19}F, comprising the step of labeling a compound of claim 84, wherein at least one of the substituents R^3 -R^{10} is a tri-alkyl tin, by reaction of the compound with a ^{131}I, ^{125}I, ^{123}I, ^{76}Br, ^{75}Br, ^{18}F, or ^{19}F containing substance.

117. (Currently Amended) A pharmaceutical composition for *in vivo* imaging of amyloid deposits, comprising (a) a **labeled** compound of any of claims 78-88 and (b) a pharmaceutically acceptable carrier.

118. (Previously Presented) An *in vivo* method for detecting amyloid deposits in a subject, comprising the steps of:

(a) administering a detectable quantity of the pharmaceutical composition of claim 117, and

(b) detecting the binding of the compound to amyloid deposit in the subject.

119. (Previously Presented) The method of claim 118, wherein the amyloid deposit is located in the brain of a subject.

120. (Previously Presented) The method of claim 118, wherein the subject is suspected of having a disease or syndrome selected from the group consisting of Alzheimer's Disease, familial Alzheimer's Disease, Down's Syndrome and homozygotes for the apolipoprotein E4 allele.

121. (Previously Presented) The method of claim 118, wherein the detecting is selected from the group consisting of gamma imaging, magnetic resonance imaging and magnetic resonance spectroscopy.

122. (Previously Presented) The method of claim 121, wherein the gamma imaging is either PET or SPECT.

123. (Previously Presented) The method of claim 118, wherein the pharmaceutical composition is administered by intravenous injection.

124. (Previously Presented) The method of claim 118, wherein the ratio of (i) binding of the compound to a brain area other than the cerebellum to (ii) binding of the compound to the cerebellum, in the subject, is compared to the ratio in normal subjects.

125. (Previously Presented) A method of detecting amyloid deposits in biopsy or post-mortem human or animal tissue, comprising the steps of:

(a) incubating formalin-fixed or fresh-frozen tissue with a solution of an amyloid binding compound of claim 90 to form a labeled deposit and then,

(b) detecting the labeled deposits.

126. (Previously Presented) The method of claim 125, wherein the solution is composed of 25-100% ethanol, with the remainder of the solution being water, wherein the solution is saturated with the amyloid binding compound.

127. (Previously Presented) The method of claim 125, wherein the solution is composed of an aqueous buffer containing 0-50% ethanol, wherein the solution contains 0.0001 to 100 μM of the amyloid binding compound.

128. (Previously Presented) The method of claim 125, wherein the detecting is effected by microscopic techniques selected from the group consisting of bright-field, fluorescence, laser-confocal, and cross-polarization microscopy.

129. (Previously Presented) A method of quantifying the amount of amyloid in biopsy or post-mortem tissue, comprising the steps of:

(a) incubating a radiolabeled derivative of a compound of claim 90 with a homogenate of biopsy or post-mortem tissue, wherein at least one of the substituents R^1-R^{10} of the compound is labeled with a radiolabel selected from the group consisting of ^{125}I, ^{3}H, and a carbon-containing substituent as specified in claim 90, wherein at least one carbon is ^{14}C,

(b) separating the tissue-bound from the tissue-unbound radiolabeled derivative of a compound of claim 90,

c) quantifying the tissue-bound radiolabeled derivative of a compound of claim 90, and

d) converting the units of tissue-bound radiolabeled derivative of a compound of claim 90 to units of micrograms of amyloid per 100 mg of tissue by comparison with a standard.

130. (Previously Presented) A method of distinguishing an Alzheimer's disease brain from a normal brain, comprising the steps of:

a) obtaining tissue from (i) the cerebellum and (ii) another area of the same brain other than the cerebellum, from normal subjects and from subjects suspected of having Alzheimer's disease;

b) incubating the tissues with a radiolabeled derivative of a compound of claim 90 derivative so that amyloid in the tissue binds with the radiolabeled derivative of a compound of claim 90;

c) quantifying the amount of amyloid bound to the radiolabeled derivative of a compound of claim 90, by administering a detectable quantity of the pharmaceutical composition comprising a compound of claim 90 with a pharmaceutically acceptable carrier, and detecting the binding of the compound to amyloid deposit in the subject;

d) calculating the ratio of the amount of amyloid in the area of the brain other than the cerebellum to the amount of amyloid in the cerebellum;

e) comparing the ratio for amount of amyloid in the tissue from normal subjects with the ratio for amount of amyloid in tissue from subjects suspected of having Alzheimer's disease; and

f) determining the presence of Alzheimer's disease if the ratio from the brain of a subject suspected of having Alzheimer's disease is above 90% of the ratios obtained from the brains of normal subjects.